



Revision A10 Transmittal

May 15, 2011

TO: Holders of Cirrus Design SR20 Pilot's Operating Handbook for Aircraft Serials 1148 thru 1267 and Aircraft Serials 1005 thru 1147 after 3000 Pound Gross Weight Modification, P/N 11934-002.

SUBJECT: Revision A10 dated 09 May 2011

Revision A10 to the Model SR20 Pilot's Operating Handbook revises Sections 3, 3A, 6, 8, and 9.

Revise sections by inserting revised pages and removing superseded pages in accordance with the List of Effective Pages. After incorporating revision pages, discard superseded pages and this transmittal.

Direct questions concerning change of address to the following:

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or

(800) 921-2737



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Revision A10 Highlights

| Page | Revision Description |
|------------------|--|
| Section 3..... | Revised Engine Failure In Flight Checklist. |
| Section 3A | Revised Door Open In Flight Checklist. |
| Section 6..... | Removed duplicate Center of Gravity Limits Illustration. |
| Section 8..... | Revised Brake Temperature Indicator Inspection. |
| Section 9..... | Revised Log of Supplements. |



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| Reissue.....A..... | 10 Oct 2003 | Revision.....A6..... | 18 Jan 2006 |
| Revision.....A1..... | 06 Feb 2004 | Revision.....A7..... | 09 Aug 2006 |
| Revision.....A2..... | 03 Jul 2004 | Revision.....A8..... | 15 Dec 2007 |
| Revision.....A3..... | 30 Jan 2005 | Revision.....A9..... | 26 Aug 2009 |
| Revision.....A4..... | 18 Jul 2005 | Revision.....A10..... | 09 May 2011 |
| Revision.....A5..... | 12 Oct 2005 | | |

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Engine Failure In Flight

If the engine fails at altitude, pitch as necessary to establish best glide speed. While gliding toward a suitable landing area, attempt to identify the cause of the failure and correct it. If altitude or terrain does not permit a safe landing, CAPS deployment may be required. *Refer to Section 10, Safety Information*, for CAPS deployment scenarios and landing considerations.

• WARNING •

If engine failure is accompanied by fuel fumes in the cockpit, or if internal engine damage is suspected, move Mixture Control to CUTOFF and do not attempt a restart.

1. Best Glide Speed ESTABLISH
2. Mixture FULL RICH
3. Fuel Selector SWITCH TANKS
4. Fuel Pump BOOST
5. Alternate Induction Air ON
6. Ignition Switch CHECK, BOTH
7. If engine does not start, proceed to *Engine Airstart* or *Forced Landing* checklist, as required.



Engine Airstart

The following procedures address the most common causes for engine loss. Switching tanks and turning the fuel pump on will enhance starting if fuel contamination was the cause of the failure. Leaning the mixture and then slowly enriching mixture may correct faulty mixture control.

• Note •

Engine airstarts may be performed during 1g flight anywhere within the normal operating envelope of the airplane.

1. Bat Master Switch ON
2. Power Lever 1/2" OPEN
3. Mixture RICH, AS REQ'D
4. Fuel Selector SWITCH TANKS
5. Ignition Switch BOTH
6. Fuel Pump BOOST
7. Alternate Induction Air ON
8. Alt Master Switches OFF
9. Starter (Propeller not Windmilling) ENGAGE
10. Power Lever slowly INCREASE
11. Alt Master Switches ON
12. If engine will not start, perform *Forced Landing* checklist.



Ground Procedures

Brake Failure During Taxi

Ground steering is accomplished by differential braking. However, increasing power may allow some rudder control due to increased groundspeed and airflow over the rudder.

1. Engine Power..... AS REQUIRED
 - To stop airplane - REDUCE
 - If necessary for steering - INCREASE
2. Directional ControlMAINTAIN WITH RUDDER
3. Brake Pedal(s)PUMP

If directional control can not be maintained:

4. MixtureCUTOFF

Aborted Takeoff

Use as much of the remaining runway as needed to safely bring the airplane to a stop or to slow the airplane sufficiently to turn off the runway.

1. Power Lever IDLE
2. Brakes..... AS REQUIRED

• Caution •

For maximum brake effectiveness, retract flaps, hold control yoke full back, and bring the airplane to a stop by smooth, even application of the brakes to avoid loss of control and/or a blown tire.

After a high-speed aborted takeoff, brake temperatures will be elevated; subsequent aborted takeoffs or other high-energy use of the brakes may cause brake overheat, failure and possibly even fire. A 25-minute cooling time is recommended following high-energy use of the brake system before attempting to conduct operations that may require further high-energy braking. Brake temperature indicator should be inspected prior to flight following a high-energy brake event (refer to Preflight Walk-Around Checklist for detail).



In-Flight Procedures

Inadvertent Icing Encounter

Flight into known icing conditions is prohibited. However, If icing is inadvertently encountered:

1. Pitot Heat ON
2. Exit icing conditions. Turn back or change altitude.
3. Cabin Heat MAXIMUM
4. Windshield Defrost FULL OPEN
5. Alternate Induction Air ON

Inadvertent IMC Encounter

Upon entering IMC, a pilot who is not completely proficient in instrument flying should rely upon the autopilot to execute a 180° turn to exit the conditions. Immediate action should be made to turn back as follows:

1. Airplane Control Establish Straight and Level Flight
2. Autopilot Engage to hold Heading and Altitude
3. Heading Reset to initiate 180° turn

Door Open In Flight

The doors on the airplane will remain 1-3 inches open in flight if not latched. If this is discovered on takeoff roll, abort takeoff if practical. If already airborne do not allow efforts to close the door interfere with the primary task of maintaining control of the airplane. Do not attempt to hold door closed. Upon landing flare door may swing open - do not attempt to close door.

1. Airplane Control MAINTAIN



Section 6

Weight and Balance

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Section 6
Weight and Balance

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Airplane Weighing Procedures

A basic empty weight and center of gravity were established for this airplane when the airplane was weighed just prior to initial delivery. However, major modifications, loss of records, addition or relocation of equipment, accomplishment of service bulletins, and weight gain over time may require re-weighing to keep the basic empty weight and center of gravity current. The frequency of weighing is determined by the operator. All changes to the basic empty weight and center of gravity are the responsibility of the operator. *Refer to Section 8 for specific servicing procedures.*

1. Preparation:
 - a. Inflate tires to recommended operating pressures.
 - b. Service brake reservoir.
 - c. Drain fuel system.
 - d. Service engine oil.
 - e. Move crew seats to the most forward position.
 - f. Raise flaps to the fully retracted position.
 - g. Place all control surfaces in neutral position.
 - h. Verify equipment installation and location by comparison to equipment list.
2. Leveling (Figure 6-2):
 - a. Level longitudinally with a spirit level placed on the pilot door sill and laterally with of a spirit level placed across the door sills. (See Figure 6-2) Alternately, level airplane by sighting the forward and aft tool holes along waterline 95.9.
 - b. Place scales under each wheel (minimum scale capacity, 500 pounds nose, 1000 pounds each main).
 - c. Deflate the nose tire and/or shim underneath scales as required to properly center the bubble in the level.
3. Weighing (Figure 6-3):
 - a. With the airplane level, doors closed, and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.



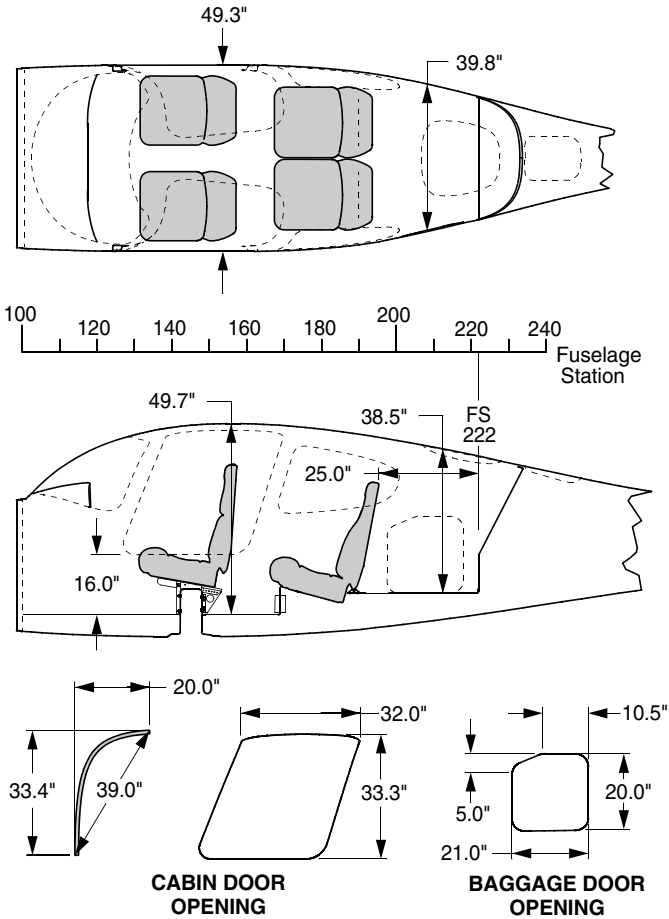
4. Measuring (Figure 6-3):
 - a. Obtain measurement 'x' by measuring horizontally along the airplane center line (BL 0) from a line stretched between the main wheel centers to a plumb bob dropped from the forward side of the firewall (FS 100). Add 100 to this measurement to obtain left and right weighing point arm (dimension 'A'). Typically, dimension 'A' will be in the neighborhood of 157.5.
 - b. Obtain measurement 'y' by measuring horizontally and parallel to the airplane centerline (BL 0), from center of nosewheel axle, left side, to a plumb bob dropped from the line stretched between the main wheel centers. Repeat on right side and average the measurements. Subtract this measurement from dimension 'A' to obtain the nosewheel weighing point arm (dimension 'B').
5. Determine and record the moment for each of the main and nose gear weighing points using the following formula:

$$\text{Moment} = \text{Net Weight} \times \text{Arm}$$

6. Calculate and record the as-weighed weight and moment by totaling the appropriate columns.
7. Determine and record the as-weighed C.G. in inches aft of datum using the following formula:

$$\text{C.G.} = \text{Total Moment} / \text{Total Weight}$$

8. Add or subtract any items not included in the as-weighed condition to determine the empty condition. Application of the above C.G. formula will determine the C.G. for this condition.
9. Add the correction for engine oil (15 lb at FS 78.4), if the airplane was weighed with oil drained. Add the correction for unusable fuel (26.4 lb at FS 153.95) to determine the Basic Empty Weight and Moment. Calculate and record the Basic Empty Weight C.G. by applying the above C.G. formula.
10. Record the new weight and C.G. values on the Weight and Balance Record.



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| Location | Length | Width | Height | Volume |
|---------------------|--------|-------|--------|-----------|
| Cabin | 122" | 49.3" | 49.7" | 137 cu ft |
| Baggage Compartment | 36" | 39.8" | 38.5" | 32 cu ft |

Figure 6-5
Airplane Interior Dimensions



Loading Instructions

It is the responsibility of the pilot to ensure that the airplane is properly loaded and operated within the prescribed weight and center of gravity limits. The following information enables the pilot to calculate the total weight and moment for the loading. The calculated moment is then compared to the Moment Limits chart or table for a determination of proper loading.

Airplane loading determinations are calculated using the Weight & Balance Loading Form (Figure 6-6), the Loading Data chart and table (Figure 6-7), and the Moment Limits chart and table (Figure 6-8).

1. **Basic Empty Weight** – Enter the current Basic Empty Weight and Moment from the Weight & Balance Record.
2. **Front Seat Occupants** – Enter the total weight and moment/1000 for the front seat occupants from the Loading Data.
3. **Rear Seat Occupants** – Enter the total weight and moment/1000 for the rear seat occupants from the Loading Data.
4. **Baggage** – Enter weight and moment for the baggage from the Loading Data.
 - If desired, subtotal the weights and moment/1000 from steps 1 through 4. This is the *Zero Fuel Condition*. It includes all useful load items excluding fuel.
5. **Fuel Loading** – Enter the weight and moment of usable fuel loaded on the airplane from the Loading Data.
 - Subtotal the weight and moment/1000. This is the *Ramp Condition* or the weight and moment of the aircraft before taxi.
6. **Fuel for start, taxi, and runup** – This value is pre-entered on the form. Normally, fuel used for start, taxi, and runup is approximately 6 pounds at an average moment/1000 of 0.92.
7. **Takeoff Condition** – Subtract the weight and moment/1000 for step 8 (start, taxi, and runup) from the Ramp Condition values (step 7) to determine the Takeoff Condition weight and moment/1000.
 - The total weight at takeoff must not exceed the maximum weight limit of 3000 pounds.



- The total moment/1000 must not be above the maximum or below the minimum moment/1000 for the *Takeoff Condition Weight* as determined from the Moment Limits chart or table. |



Weight & Balance Loading Form

Serial Num: _____ Date: _____

Reg. Num: _____ Initials: _____

| Item | Description | Weight LB | Moment/ 1000 |
|------|--|--------------|-----------------|
| 1. | Basic Empty Weight <i>Includes unusable fuel & full oil</i> | | |
| 2. | Front Seat Occupants <i>Pilot & Passenger (total)</i> | | |
| 3. | Rear Seat Occupants | | |
| 4. | Baggage Area <i>130 lb maximum</i> | | |
| 5. | Zero Fuel Condition Weight <i>Sub total item 1 thru 4</i> | | |
| 6. | Fuel Loading <i>56 Gallon @ 6.0 lb/gal. Maximum</i> | | |
| 7. | Ramp Condition Weight <i>Sub total item 5 and 6</i> | | |
| 8. | Fuel for start, taxi, and runup <i>Normally 6 lb at average moment of 922.8</i> | - | - |
| 9. | Takeoff Condition Weight <i>Subtract item 8 from item 7</i> | | |

• Note •

The Takeoff Condition Weight must not exceed 3000 lb. **All weights above 2900 lb must consist of fuel.**

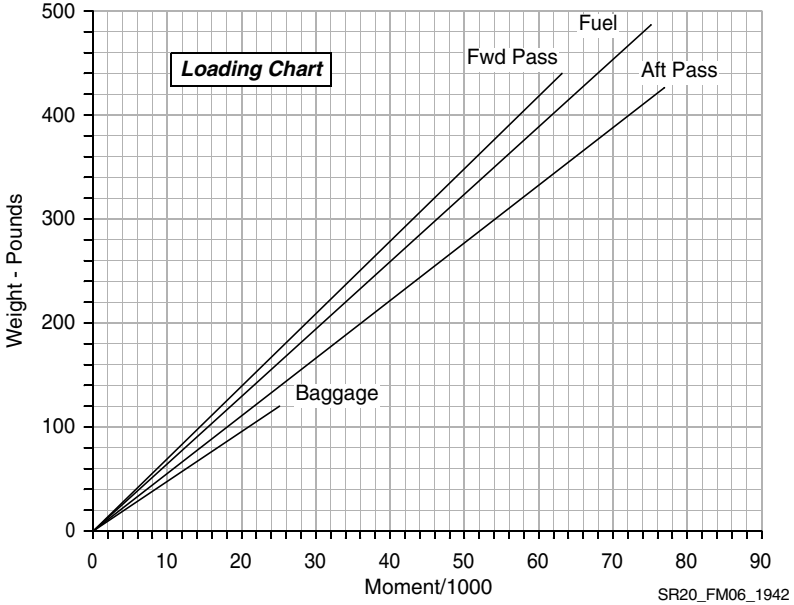
The Takeoff Condition Moment must be within the Minimum Moment to Maximum Moment range at the Takeoff Condition Weight. (Refer to Figure 6-8, Moment Limits).

Figure 6-6
Weight and Balance Loading Form



Loading Data

Use the following chart or table to determine the moment/1000 for fuel and payload items to complete the Loading Form.



| Weight LB | Fwd Pass FS 143.5 | Aft Pass FS 180.0 | Baggage FS 208.0 | Fuel FS 153.8 | Weight LB | Fwd Pass FS 143.5 | Aft Pass FS 180.0 | Fuel FS 153.8 |
|--------------|----------------------|----------------------|---------------------|------------------|--------------|----------------------|----------------------|------------------|
| 20 | 2.87 | 3.60 | 4.16 | 3.08 | 220 | 31.57 | 39.60 | 33.83 |
| 40 | 5.74 | 7.20 | 8.32 | 6.15 | 240 | 34.44 | 43.20 | 36.90 |
| 60 | 8.61 | 10.80 | 12.48 | 9.23 | 260 | 37.31 | 46.80 | 39.98 |
| 80 | 11.48 | 14.40 | 16.64 | 12.30 | 280 | 40.18 | 50.40 | 43.05 |
| 100 | 14.35 | 18.00 | 20.80 | 15.38 | 300 | 43.05 | 54.00 | 46.13 |
| 120 | 17.22 | 21.60 | 24.96 | 18.45 | 320 | 45.92 | 57.60 | 49.20 |
| 140 | 20.09 | 25.20 | (27.04)* | 21.53 | 340 | 48.79 | 61.20 | 52.28 |
| 160 | 22.96 | 28.80 | | 24.60 | 360 | 51.66 | 64.80 | 55.35 |
| 180 | 25.83 | 32.40 | | 27.68 | 380 | 54.53 | 68.40 | |
| 200 | 28.70 | 36.00 | | 30.75 | 400 | 57.40 | 72.00 | |

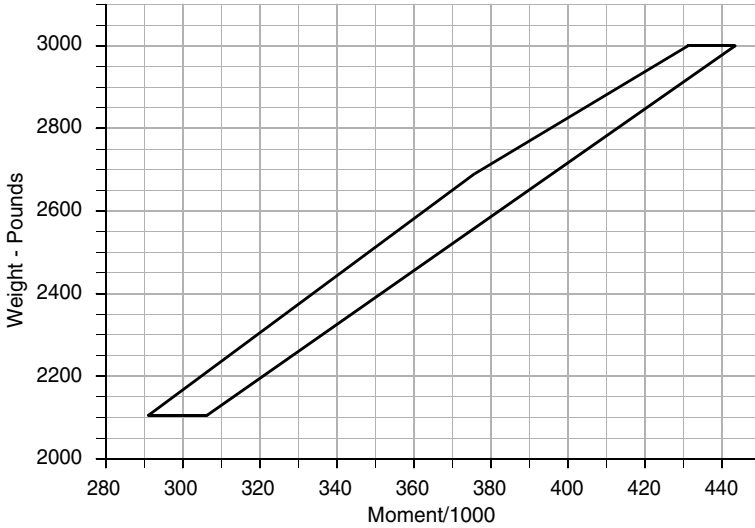
*130 lb Maximum

Figure 6-7
Loading Data



Moment Limits

Use the following chart or table to determine if the weight and moment from the completed Weight and Balance Loading Form are within limits.



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| Weight LB | Moment/1000 | | Weight LB | Moment/1000 | |
|--------------|-------------|---------|--------------|-------------|---------|
| | Minimum | Maximum | | Minimum | Maximum |
| 2110 | 293 | 305 | 2600 | 366 | 383 |
| 2150 | 299 | 311 | 2650 | 374 | 391 |
| 2200 | 306 | 320 | 2700 | 381 | 399 |
| 2250 | 314 | 328 | 2750 | 390 | 406 |
| 2300 | 321 | 336 | 2800 | 398 | 414 |
| 2350 | 329 | 344 | 2850 | 407 | 422 |
| 2400 | 336 | 352 | 2900 | 415 | 429 |
| 2450 | 344 | 360 | 2950 | 424 | 437 |
| 2500 | 351 | 368 | 3000 | 432 | 444 |
| 2550 | 359 | 376 | | | |

Figure 6-8
Moment Limits



Equipment List

This list will be determined after the final equipment has been installed in the aircraft.



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Section 8

Handling, Servicing, Maintenance

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Section 8
Handling, Servicing, Maintenance

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Jacking

Two jacking points are provided: one at each wing tiedown. Jack points (pads) are stowed in the baggage compartment. The airplane may be jacked using two standard aircraft hydraulic jacks at the wing jacking points and a weighted tailstand attached to the tail tiedown.

Raise Airplane

• Caution •

Do not jack the aircraft outside or in open hangar with winds in excess of 10 mph.

The empty CG is forward of the wing jacking points. To prevent airplane from tipping forward during maintenance or jacking, use a weighted tailstand (300-lb minimum) attached to the tail tiedown.

1. Position airplane on a hard, flat, level surface.
2. Remove tiedown rings from wings. Stow tie-down rings in baggage compartment.
3. Attach a weighted tailstand to the tail tiedown ring.
4. Position jacks and jack points (pads) for jacking. Insert jack point (pad) into wing tiedown receptacle. Holding the jack point (pad) in place, position the jack under the point and raise the jack to firmly contact the jack point. Repeat for opposite jacking point.
5. Raise the airplane keeping the airplane as level as possible.
6. Secure jack locks.

Lower Airplane

1. Release pressure on all jacks as simultaneously as necessary to keep airplane as level as possible.
2. Remove jacks, jack points (pads), and tailstand. Stow points in baggage compartment. Install tiedown rings in wings.



Servicing

Landing Gear Servicing

The main landing gear wheel assemblies use 15 x 6.00 x 6, six-ply rating tires and tubes. The nose wheel assembly uses a 5.00 x 5 four-ply rating, type III tire and tube. Always keep tires inflated to the rated pressure to obtain optimum performance and maximum service. The landing gear struts do not require servicing. With the exception of replenishing brake fluid, wheel and brake servicing must be accomplished in accordance with Airplane Maintenance Manual (AMM) procedures.

Brake Servicing

Brake Replenishing

The brake system is filled with MIL-H-5606 hydraulic brake fluid. The fluid level should be checked at every oil change and at the annual/100-hour inspection, replenishing the system when necessary. The brake reservoir is located on the right side of the battery support frame. If the entire system must be refilled, *refer to the Airplane Maintenance Manual (AMM)*.

To replenish brake fluid:

1. Chock tires and release parking brake.
2. Remove top engine cowling to gain access to hydraulic fluid reservoir.
3. Clean reservoir cap and area around cap before opening reservoir cap.
4. Remove cap and add MIL-H-5606 hydraulic fluid as necessary to fill reservoir.
5. Install cap, inspect area for leaks, and then install and secure engine cowling.



Brake Inspection

The brake assemblies and linings should be checked at every oil change (50 hours) for general condition, evidence of overheating, and deterioration. *Serials 1005 thru 1147 before SB 2X-05-01*: At every annual/100-hour inspection the brakes should be disassembled, the brake linings should be checked and the O-rings replaced.

The aircraft should not be operated with overheated, damaged, or leaking brakes. Conditions include, but are not limited to:

- Leaking brake fluid at the caliper. This can be observed by checking for evidence of fluid on the ground or deposited on the underside of the wheel fairing. Wipe the underside of the fairing with a clean, white cloth and inspect for red colored fluid residue.
- Overheated components, indicated by discoloration or warping of the disk rotor. Excessive heat can cause the caliper components to discolor or cause yellowing of the part identification label.

To inspect the brake assemblies:

1. Remove main gear fairing. (Refer to AMM 32-10)
2. Wipe off any debris from brake caliper assembly that may obstruct inspection.
3. Check brake linings for deterioration and maximum permissible wear. Replace lining when worn to 0.100 inch (2.54 mm).
4. Inspect temperature indicator(s):
 - a. Clean and inspect temperature indicators installed to brake caliper assembly.
 - b. Verify temperature indicators are firmly adhered to piston housing.
 - c. If either temperature indicator is black, the brake assembly has overheated. The brake linings must be inspected and the O-rings replaced.
5. Check brake assemblies for evidence of overheating and/or deterioration.
6. Install main gear fairing. (Refer to AMM 32-10)



Tire Inflation

For maximum service from the tires, keep them inflated to the proper pressure. When checking tire pressure, examine the tires for wear, cuts, nicks, bruises and excessive wear.

To inflate tires:

1. Remove inspection buttons on wheel pants to gain access to valve stems. It may be necessary to move airplane to get valve stem aligned with the access hole.
2. Remove valve stem cap and verify tire pressure with a dial-type tire pressure gage.
3. Inflate nose tire to 40 +2/-0 psi (276 +15/-0 kPa) and main wheel tires to 53 +2/-0 psi (365 +15/-0 kPa).
4. Replace valve stem cap and inspection buttons.

All wheels and tires are balanced before original installation and the relationship of tire, tube, and wheel should be maintained upon reinstallation. In the installation of new components, it may be necessary to rebalance the wheels with the tires mounted. Unbalanced wheels can cause extreme vibration in the landing gear.

Propeller Servicing

The spinner and backing plate should be cleaned and inspected for cracks frequently. Before each flight the propeller should be inspected for nicks, scratches, and corrosion. If found, they should be repaired as soon as possible by a rated mechanic, since a nick or scratch causes an area of increased stress which can lead to serious cracks or the loss of a propeller tip. The back face of the blades should be painted when necessary with flat black paint to retard glare. To prevent corrosion, the surface should be cleaned and waxed periodically.



Section 9

Log of Supplements

| Part Number | Title | Date |
|------------------|---|----------|
| ___ 11934-S01 R2 | Garmin GMA 340 Audio System | 07-18-05 |
| ___ 11934-S02 | Garmin GTX 320 Transponder | 03-31-99 |
| ___ 11934-S05 | Garmin GNC 250XL GPS Navigator w/ VHF COM | 03-31-99 |
| ___ 11934-S06 R1 | S-Tec System Twenty Autopilot | 12-07-04 |
| ___ 11934-S07 R2 | S-Tec System Thirty Autopilot | 12-07-04 |
| ___ 11934-S08 R3 | S-Tec System 55 Autopilot | 07-18-05 |
| ___ 11934-S09 R1 | Approved Oxygen Systems | 01-07-03 |
| ___ 11934-S10 | Dual Alternator System | 09-28-99 |
| ___ 11934-S11 R1 | L-3 Avionics Systems WX500 Stormscope Sensor | 07-18-05 |
| ___ 11934-S12 | Garmin GTX 327 Transponder | 12-26-00 |
| ___ 11934-S13 R4 | S-Tec System 55X Autopilot | 07-18-05 |
| ___ 11934-S15 R1 | L-3 Avionics Systems SkyWatch Traffic Advisory System | 10-12-05 |
| ___ 11934-S16 | Sandel Avionics SN3308 Navigation Display | 09-10-01 |
| ___ 11934-S17 | SR20 Airplanes Registered in Canada | 10-10-01 |
| ___ 11934-S22 R2 | Garmin GNS 430 GPS Navigator | 08-15-07 |
| ___ 11934-S23 R2 | Garmin GNC 420 GPS Navigator | 08-15-07 |
| ___ 11934-S25 R1 | Winterization Kit | 12-07-04 |
| ___ 11934-S28 | Garmin GTX 330 Mode S Transponder | 07-03-04 |
| ___ 11934-S29 | SR20 Airplanes Registered in the European Union | 05-27-04 |
| ___ 11934-S30 R1 | Honeywell KGP 560 Terrain/Awareness Warning System | 12-15-07 |
| ___ 11934-S31 R1 | Avidyne EMax™ Engine Instrumentation | 12-15-07 |
| ___ 11934-S32 R1 | Avidyne CMax™ Electronic Approach Charts | 12-15-07 |
| ___ 11934-S33 R1 | XM Satellite Weather System | 12-15-07 |
| ___ 11934-S36 R1 | Artex ME406 406 MHz ELT System | 12-18-08 |
| ___ 11934-S38 R1 | Garmin 400W-Series GPS Navigator | 11-11-07 |
| ___ 11934-S43 | SR20 Airplanes Registered in Russia | 10/14/09 |
| ___ 11934-S44 | Part 135 Electrical Loading Shedding Procedure | 06-13-09 |
| ___ 11934-S45 | SR20 Airplanes Registered in Argentina | 09-30-09 |



**Section 9
Supplements**

**Cirrus Design
SR20**

 11934-S51 SR20 Airplanes Registered in Colombia

12-07-10

FAA Approved POH Supplements must be in the airplane for flight operations when the subject optional equipment is installed or the special operations are to be performed.

This Log of Supplements shows all Cirrus Design Supplements available for the aircraft at the corresponding date of the revision level shown in the lower left corner. A mark (x) in the Part Number column indicates that the supplement is installed in the POH.